# Minister's Report to Parents
# Student Assessment Results for Nova Scotia

**Language Arts**
**Mathematics**
**Science**

**Provincial**
**National**
**International**

# 2001

Assessments

# Minister's Report to Parents

# Student Assessment Results for Nova Scotia

Nova Scotia

# A Message from the Minister

Government has committed to improve student reporting systems so parents have accurate, regular information about their children's progress. This report contains recent provincial, national, and international test results as part of that commitment. It will be released each year so everyone knows how our students are progressing.

Teachers have worked with my department in developing new curriculum to reflect provincial, national, and international standards. We need to assess how our students are doing in meeting these standards to guide educational change and improvement.

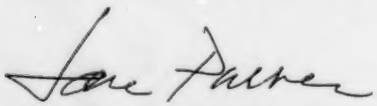
This report contains some encouraging news. In a recent international assessment, Nova Scotia students performed better than students in many other countries. Nova Scotia also led the Atlantic provinces. Teachers and students deserve credit and support for this achievement.

At the same time, our results in national assessments have been mixed. Of even greater concern, results in our Nova Scotia assessments are below provincial and public expectations.

We must act now—with school boards, teachers, and school advisory councils—to help students meet the curriculum standards. The following are some actions we must take:

- Reading, writing, and mathematics must be the first priorities. We are putting thousands of books in the hands of students and teachers to support reading, writing, and grammar. We are also setting standards that provide more time for learning mathematics and literacy.
- We will support teachers by providing appropriate professional development, as well as sample lesson plans, homework guides, and other resources to support them in teaching the curriculum.
- Parents will get more information and more opportunity, through school advisory councils, to influence what happens in their children's education.

We will not improve student achievement by hiding results or by assigning blame. Together, we must identify where there are problems, and address them. I look forward to working with all partners in education to improve the quality of education for Nova Scotia students.



The Honorable Jane Purves
Minister of Education, Nova Scotia

# Background

## Social Context

Nova Scotia is a small province with a population of 942 700, and a higher rural population than the Canadian average. Population growth is currently below 1 percent annually. Immigration is low both in absolute numbers and compared to immigration in Canada as a whole. About 9 percent of the population speaks both English and French, or French only. Among the total population, 2 percent is African Canadian, 1.4 percent is Aboriginal, and 1.5 percent consists of other visible minorities. Unemployment rates in Nova Scotia are typically above the Canadian average.

## Organization of the School System

Nova Scotia's total school population is 155 873 from primary to grade 12. The province has a teaching force of 9752 and an overall student/teacher full-time equivalent (FTE) ratio of 16.5. There are seven school boards. Six boards are regional school boards, including the Southwest Regional School Board, which is divided into two district school boards, and one is a provincial school board for Acadian/Francophone students, known as the *Conseil scolaire acadien provincial.* About 97.4 percent of the students are enrolled in Anglophone school boards, and about 2.6 percent of the students are enrolled in the *Conseil scolaire acadien provincial.* School enrolment is expected to continue to decrease over the next few years.

Children who are 5 years old on or before October 1 of the current school year are admitted to primary school. Students must attend school until they are 16 years old.

## School Board Funding

Funding for school boards has increased and student enrolments have declined over the years as presented in the chart below.

| Year | Total | Funded Enrolment | Per Student |
|---|---|---|---|
| 1997–98 | $660 084 693 | 162 029 | $4074 |
| 1998–99 | $722 061 813 | 160 902 | $4488 |
| 1999–00 | $750 821 400 | 158 750 | $4730 |
| 2000–01 | $754 108 200 | 156 761 | $4811 |
| 2001–02 | $761 653 500 | 154 476 | $4931 |

Note: Funding adjusted to remove the impact of Early Retirement Plan

# Assessment

Assessment results are a reliable indicator and a performance measure of the success of the provincial public school system. As an indicator, results are the basis for subsequent actions and directed policies. As a performance measure, results gauge the progress of public school education and the consequences of the subsequent policies and actions.

Assessment results, along with other information, are used by the Department of Education to improve the quality of educational decision making. Our goal is to enhance the learning environment for all students in Nova Scotia.

The *Minister's Report to Parents: 2001* is the first annual publication of test results, to give up-to-date information on the performance of students in Nova Scotia, in provincial, national, and international assessments.

# Contents


Minister's Report to Parents ..... 1
Purpose of the Minister's Report to Parents ..... 1
Assessment Sources Used ..... 1
Organization of the Minister's Report to Parents: 2001 ..... 2
Summary of Assessment Results for Language Arts ..... 3
Provincial Assessment ..... 3
National Assessment ..... 7
International Assessment ..... 10
Summary of Assessment Results for Mathematics ..... 11
Provincial Assessment ..... 11
National Assessment ..... 12
International Assessment ..... 15
Summary of Assessment Results for Science ..... 17
Provincial Assessment ..... 17
National Assessment ..... 18
International Assessment ..... 20
Minister's Action Plan ..... 21

# Minister's Report to Parents

The *Minister's Report to Parents: 2001* publishes information on the performance of Nova Scotia students in recent provincial, national, and international assessments of language arts, mathematics, and science.

## Purpose of the Minister's Report to Parents

In *Strong Leadership ... A Clear Course* (1999), the provincial government committed "to provide parents with accurate, regular information about their children's progress." This is the first provincial report card to help meet that commitment. Beyond accountability, the results will be used by the Department of Education, school boards, teachers, and school advisory councils to improve the quality of learning for students in Nova Scotia.

# Assessment Sources Used

Three sources of information were used to prepare the *Minister's Report to Parents: 2001*. A brief description of each follows.

**Program of Learning Assessment for Nova Scotia (PLANS)**
Nova Scotia develops and administers assessments for elementary, junior high, and senior high schools as part of the Program of Learning Assessment for Nova Scotia (PLANS). Included in PLANS are alternating assessments in language arts and mathematics in elementary and junior high schools. As well, Nova Scotia Examinations (NSE) are administered to grade 12 students in English language arts and the sciences. The NSE for mathematics are in development.

Examinations and assessments for Acadian/Francophone students are also in development, and results of these will appear in future reports.

**School Achievement Indicators Program (SAIP)**
The School Achievement Indicators Program (SAIP) is a national assessment comprising cycled administrations of mathematics, reading and writing, and science. Nova Scotia has participated in this national assessment program since 1993.

**Programme of International Student Assessment (PISA)**

Programme of International Student Assessment (PISA) was administered in 32 countries for the first time in the spring of 2000. PISA assesses 15-year-old students in reading, mathematics, and science. The assessment results are presented by ranking the performance of Nova Scotia students among the performance of students from other provinces in Canada and in other nations. Canadian territories did not participate in the assessment.

## Organization of the Minister's Report to Parents: 2001

The *Minister's Report to Parents: 2001* is organized into three sections with summary results for provincial, national, and international assessments, by subject area:

- Language Arts
- Mathematics
- Science

# Summary of Assessment Results for Language Arts

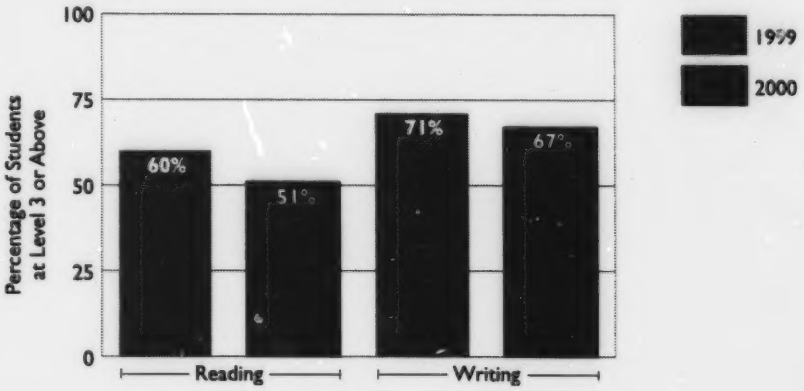
## Provincial Assessment

### Elementary Reading and Writing Assessment 1999 and 2000

In 1999 and 2000, the Department of Education assessed grade 6 students in reading and writing. The assessment results were reported at five levels of performance. Grade 6 students are expected to perform at level 3 or above. In 1999, more students performed at the level of expectation in the reading component of the assessment than they did in 2000. For the writing component, a similar pattern of performance between 1999 and 2000 was observed. The chart below presents the results for 1999 and 2000 and the percentage of students at or above the level of expectation.

Performance of students may vary from year to year. It takes time to determine performance trends.

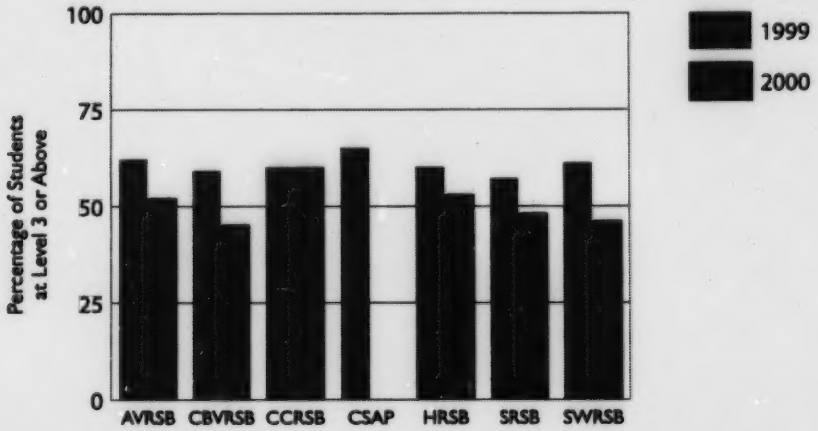
**Elementary Reading and Writing Assessment**



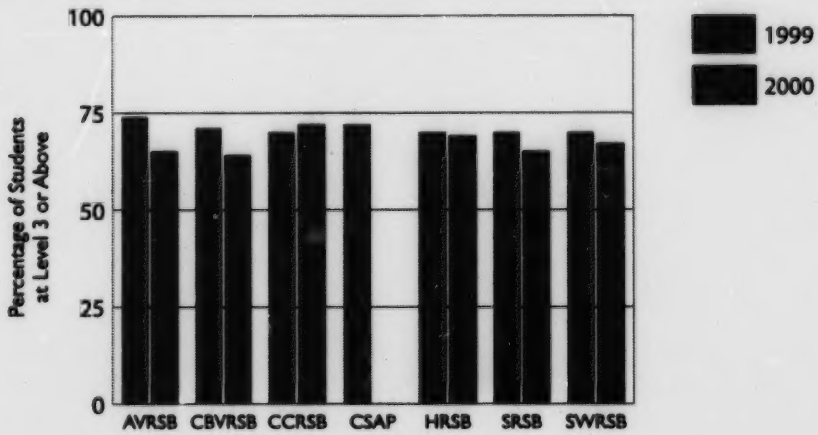
The following two charts present the results for the reading and writing assessment by school board.

**AVRSB**—Annapolis Valley Regional School Board
**CBVRSB**—Cape Breton-Victoria Regional School Board
**CCRSB**—Chignecto-Central Regional School Board
**CSAP**—Conseil scolaire acadien provincial
**HRSB**—Halifax Regional School Board
**SRSB**—Strait Regional School Board
**SWRSB**—Southwest Regional School Board

**Elementary Reading Assessment by Board**




**Elementary Writing Assessment by Board**



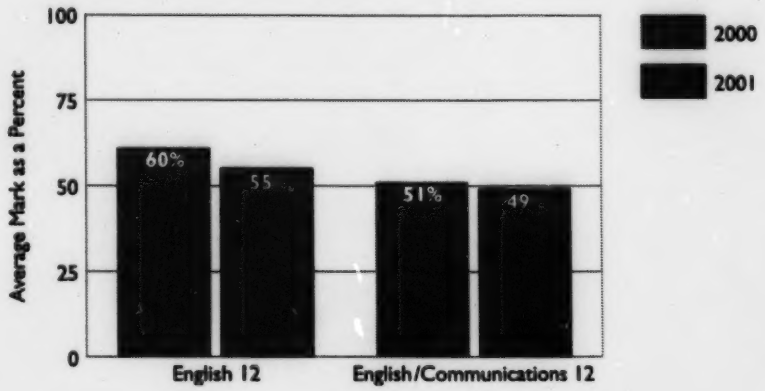

In 1999, grade 6 students of the Conseil scolaire acadien provincial participated in the English reading and writing assessment.

## English 12 and English/Communications 12 Examinations

During 2000 and 2001, NSE in language arts were administered to grade 12 students completing English 12 and English/Communications 12 courses at the end of January and June.

The pass mark for NSE is 50 percent. The chart below shows the provincial results, giving the average mark as a percent, in both courses in both administration periods.

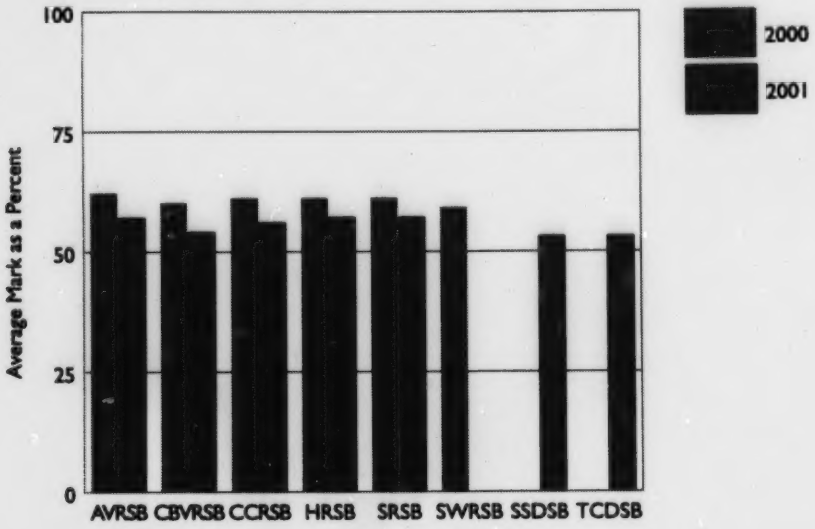
**Grade 12 English Language Arts Examinations**



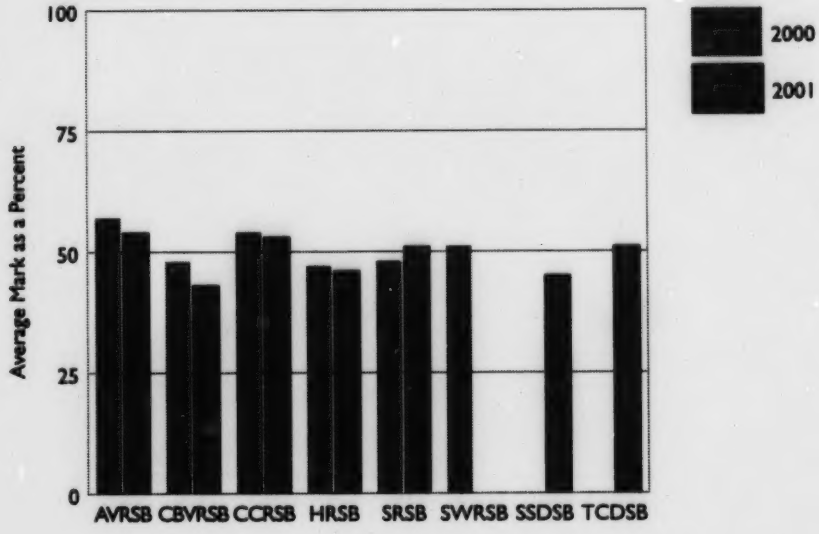

The results for 2000 and 2001 were low for students in their final year of public school education.

The following two charts present the results of English 12 and English/Communications 12 examinations at the board level, giving the average mark as a percent.

**English 12 Examinations by Board**




**English/Communications 12 Examinations by Board**




In 2000, as a pilot project, the SWRSB was divided into two district school boards, the South Shore District School Board (SSDSB) and the Tri-County District School Board (TCDSB). Results for the 2001 examinations were reported for these district school boards.

# National Assessment

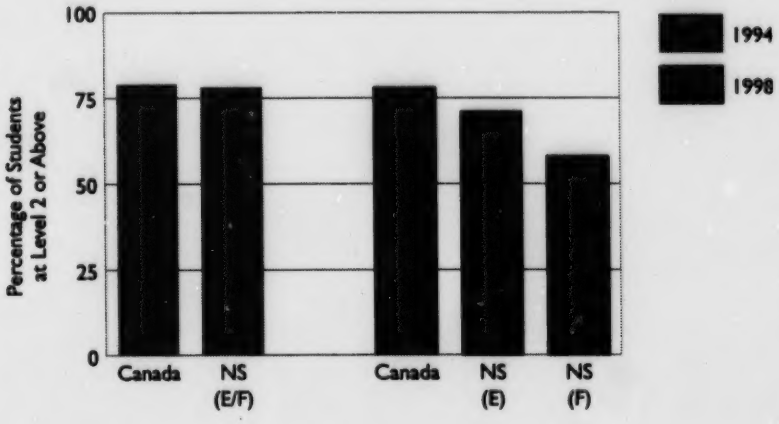
## SAIP

The four charts that follow present the results of two administrations of the SAIP reading and writing assessment. The assessment was administered in 1994 and 1998 to 13- and 16-year-old students. The assessment was marked using five levels of criteria, increasing in difficulty from level 1 to level 5. The standard for performance is level 2 or above for 13-year-olds and level 3 or above for 16-year-olds. Acadian/ Francophone students wrote the national assessment in French.

The following two charts show the performance of Nova Scotia 13-year-old students (level 2 or above) in reading and writing in comparison with all of Canada for 1994 and 1998. In 1998, Acadian/Francophone student results in Nova Scotia were reported separately.

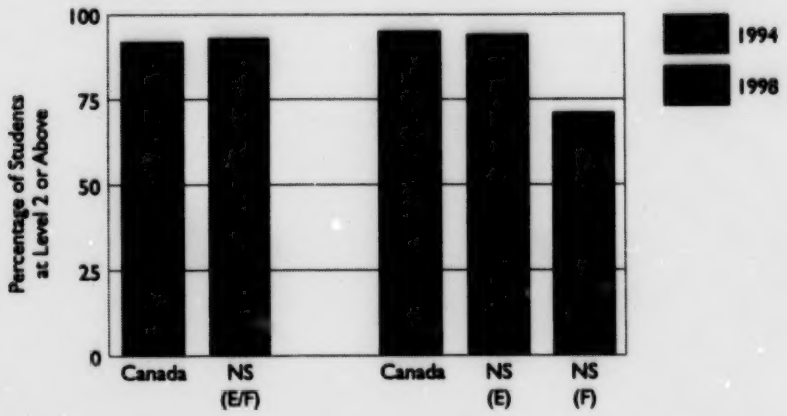
**E** - English (Anglophone)
**F** - French (Acadian/Francophone)

**SAIP Reading (13-year-old students)**




Nova Scotia students did not perform as well as their Canadian counterparts in 1998.

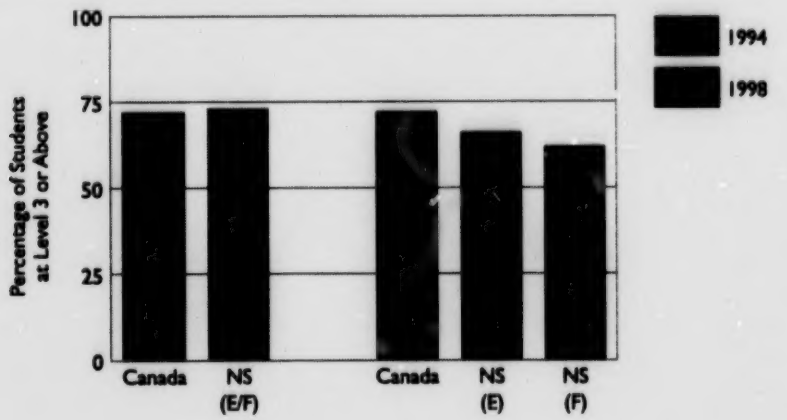
**SAIP Writing (13-year-old students)**



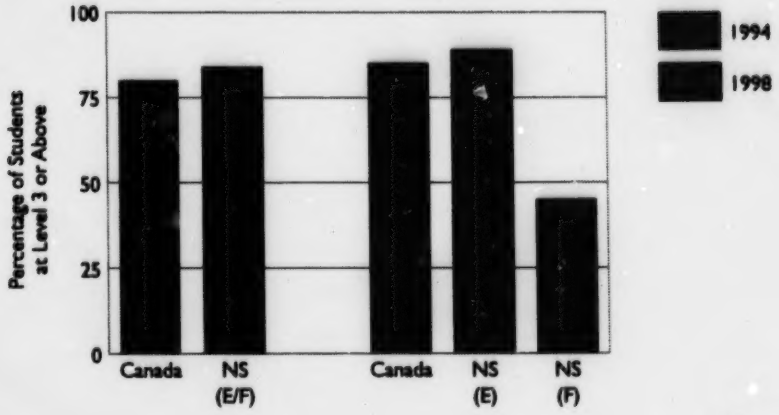

In 1994, Nova Scotia 13-year-olds performed as well as others in the same age group in Canada. In 1998, Acadian/Francophone student results were below the national average.

The following two charts compare the results of Nova Scotia 16-year-old students at level 3 or above in reading and writing to the Canadian student average in the same category.

**SAIP Reading (16-year-old students)**



**SAIP Writing (16-year-old students)**



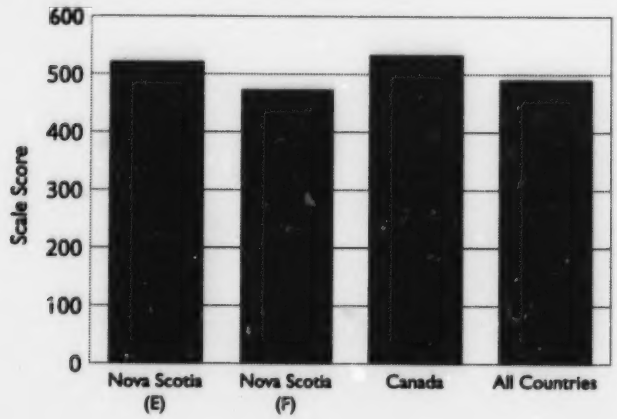

In 1994, 16-year-old students in Nova Scotia performed as well as students in the same age group in Canada. In 1998, there were some differences in the results observed. In reading, Nova Scotia students did not perform as well as those in Canada as a whole. In writing, Nova Scotia Anglophone students performed better than the Canadian average. Acadian/Francophone results were low with less than 45 percent of students achieving level 3 or above.

# International Assessment

## PISA

The performance of Nova Scotia Anglophone and Acadian/Francophone students in comparison to students in Canada and all participating countries in 2000 is indicated in the following chart.

**PISA Reading 2000 (15-year-old students)**




The vertical axis on the graph is a scale score. The scores for Canada and Nova Scotia (E) were above the international average. The scores for Nova Scotia (F) were below the international average.

Nova Scotia students did not perform as well as the Canadian student average in the reading test.

# Summary of Assessment Results for Mathematics

## Provincial Assessment

### Elementary Mathematics Assessment

In the spring of 2001, an elementary mathematics assessment was administered to all grade 5 students in the province. Students were assessed on work covered in grades 3, 4, and 5.

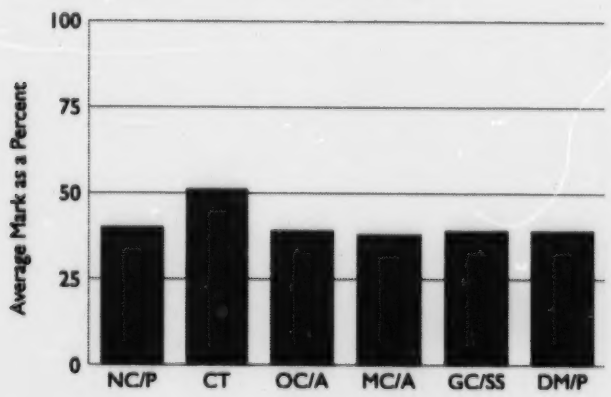
The assessment was made up of different tests to determine the knowledge and skills of students in

- Number Concepts and Patterns (NC/P)
- Computational Tasks (CT)
- Operation Concepts and Applications (OC/A)
- Measurement Concepts and Applications (MC/A)
- Geometry Concepts and Spatial Sense (GC/SS)
- Data Management and Probability (DM/P)

Student performance on all tests was weak. The overall result for all tests was 42.1 percent.

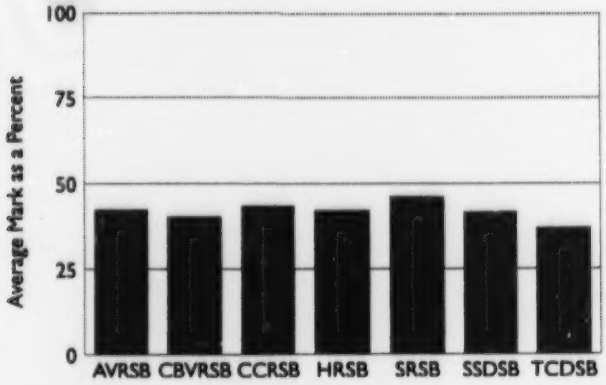
The overall results for the province on each of the individual tests are presented in the following chart. Fifty percent is the pass mark.

**Elementary Mathematics Assessment 2001**



The following chart presents the results for the elementary mathematics assessment by board. The pass mark is 50 percent.

**Elementary Mathematics Assessment 2001 by Board**




Currently, there is no NSE in mathematics for grade 12 students. However, a junior high mathematics assessment will be administered in grade 8 during 2002, and a grade 12 mathematics examination is in development.

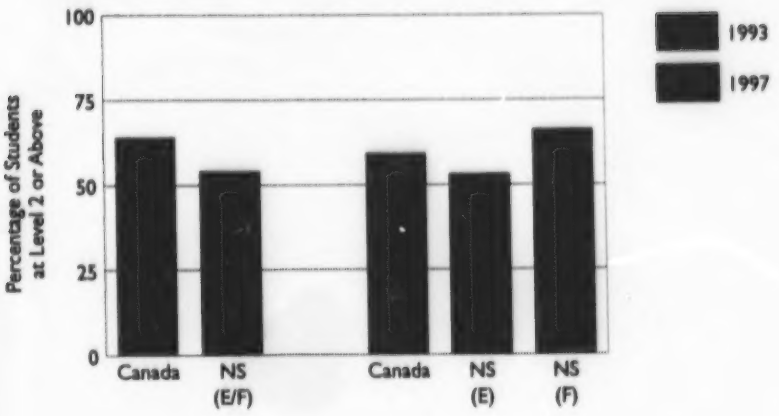
## National Assessment

### SAIP

A national mathematics assessment was administered in 1993 and 1997 to 13- and 16-year-old students in Nova Scotia and other jurisdictions in Canada. The assessment comprised content and problem-solving components. The standard for performance is level 2 or above for 13-year-olds and level 3 or above for 16-year-olds. The four charts that follow provide the Nova Scotia results of the two administrations and compare these with the results for students in all of Canada. Acadian/Francophone students wrote the national assessment in French.

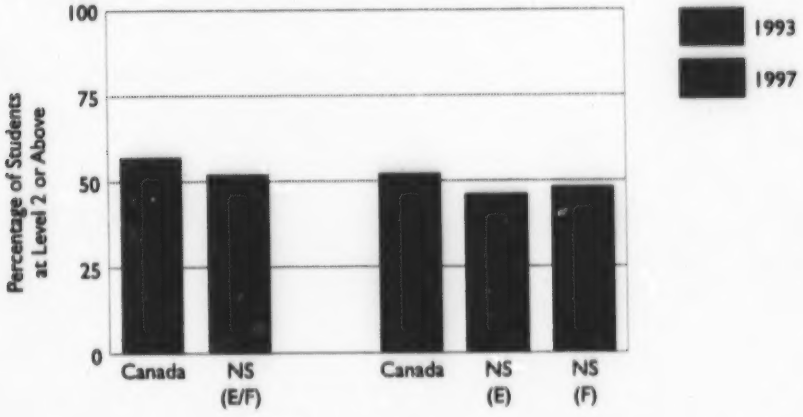
The next two charts show the results for 13-year-olds on the content and problem-solving components.

**SAIP Mathematics Content (13-year-old students)**




The results in mathematics content for 1993 and 1997 were significant. In 1993, all Nova Scotian 13-year-old students performed below the national average. In 1997, 13-year-old Acadian/Francophone students did better than the Canadian average.

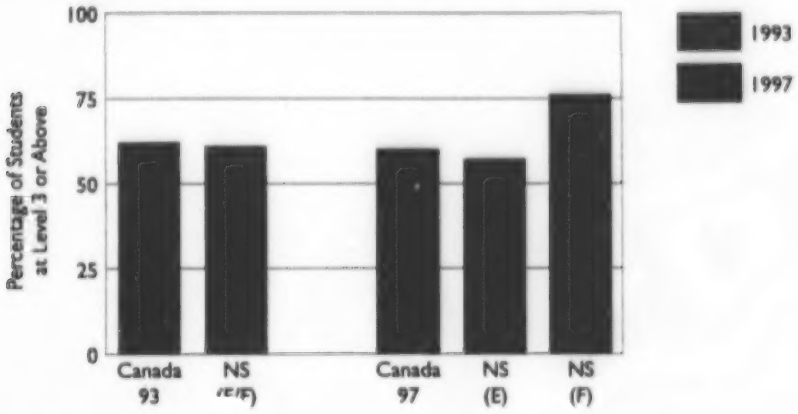
**SAIP Mathematics Problem Solving (13-year-old students)**



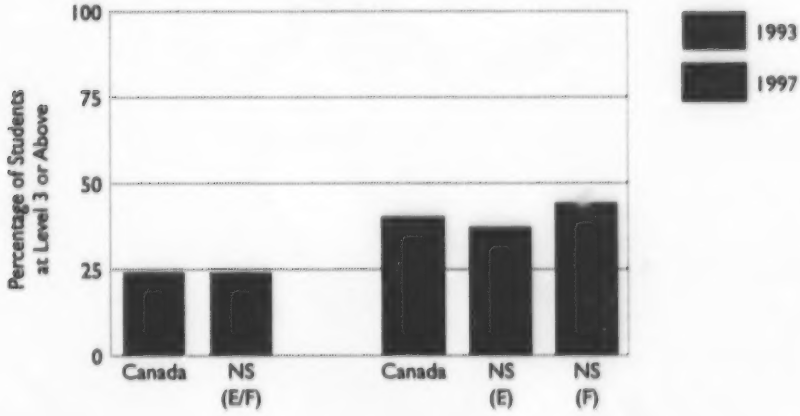

The results in mathematics problem solving for 1993 and 1997 were significant. Both Anglophone and Acadian/Francophone students in Nova Scotia performed below the Canadian average.

The next two charts show the 1993 and 1997 results for 16-year-olds on the content and problem-solving components.

**SAIP Mathematics Content (16-year-old students)**




**SAIP Mathematics Problem Solving (16-year-old students)**



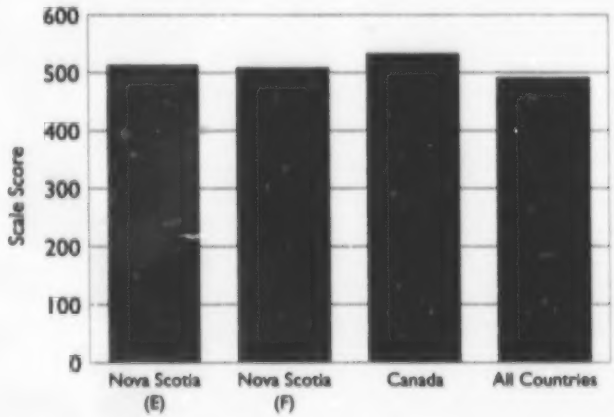

Results in 1993 for Nova Scotia students were at the national average in content and problem solving. In 1997, Nova Scotia Anglophone results in both content and problem solving were comparable to the national average. Sixteen-year-old Acadian/Francophone students in Nova Scotia demonstrated a significantly better performance in both mathematics content and problem solving.

# International Assessment

## PISA

The PISA assessment was first administered in 2000 and included a mathematics test. Nova Scotia 15-year-old students wrote the test, as did students in other provinces in Canada and in 31 other countries. The results in the chart below give the performance of Nova Scotia Anglophone and Acadian/Francophone students in mathematics in relation to the Canadian average, as well as the average for all countries.

**PISA Mathematics 2000 (15-year-old students)**




Nova Scotia students performed above the international average but below the national average in the mathematics test.

# Summary of Assessment Results for Science

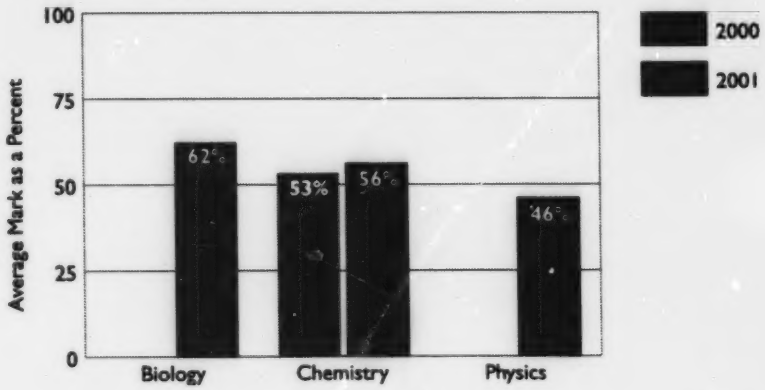
## Provincial Assessment

### Grade 12 Science Examinations

NSE are administered in the sciences to grade 12 students completing courses at the end of January and June. Fifty percent is the requirement for students to pass each examination.

The chart that follows illustrates the overall provincial results for Biology 12, Chemistry 12, and Physics 12 examinations administered in January and June 2001. Results for Chemistry 12 in January and June 2000 are also presented.

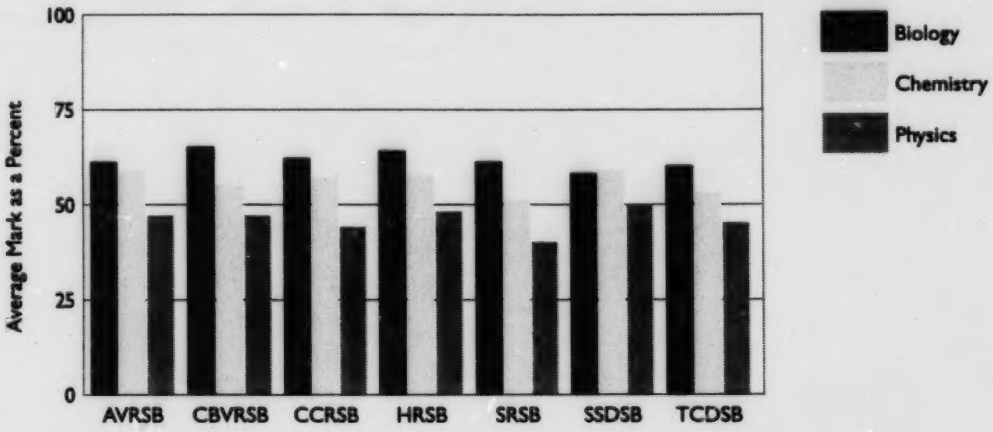
**Grade 12 Science Examinations**




The chemistry examination has been administered for two years. Student performance has improved over these two years. Results for the first administration of the biology examination were satisfactory, whereas the results of the physics examination were disappointing.

The following chart presents the results of the 2001 science examinations for each school board.

**Grade 12 Science Examinations 2001 by Board**




Some differences in the results were observed among boards. Poor performance in the physics examination was common to all boards.

## National Assessment

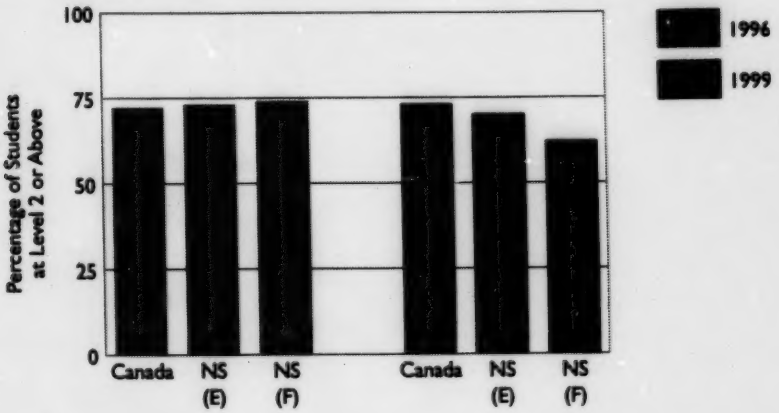
### SAIP

The SAIP science assessment was administered to 13- and 16-year-old Nova Scotia students in April 1996 and 1999. There were two components in the assessment—practical and science content. Many jurisdictions, including Nova Scotia, did not test a large enough sample of students to provide results in the practical component. Therefore, no charts are presented in this report.

The science content component did yield provincial results. The charts that follow provide the results of Nova Scotia students in science content, comparing them to the Canadian student average.

The following chart presents the 1996 and 1999 results for Nova Scotia and Canada. The charts indicate the percentage of 13-year-old students performing at level 2 or above.

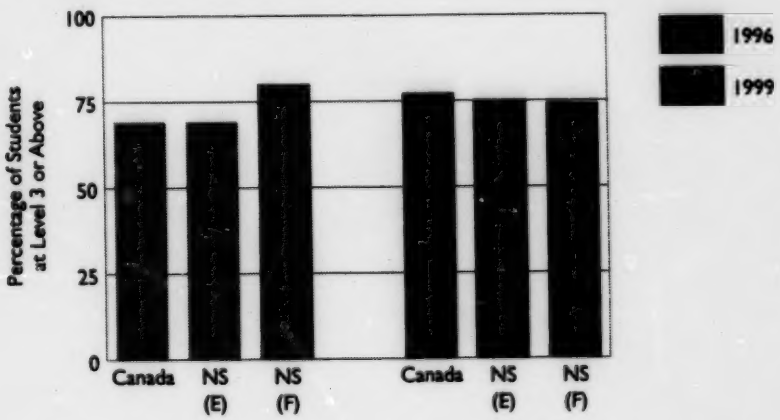
**SAIP Science (13-year-old students)**




In 1996, Acadian/Francophone students in Nova Scotia performed better than students in Canada at level 2 or above. In 1999, Acadian/Francophone students in Nova Scotia did not perform as well as their Canadian counterparts. The performance of Anglophone students in Nova Scotia compared favourably with students in all of Canada in 1996 and 1999.

The following chart presents the 1996 and 1999 results for Nova Scotia and Canada. The chart indicates the percentage of 16-year-old students performing at level 3 or above.

**SAIP Science (16-year-old students)**



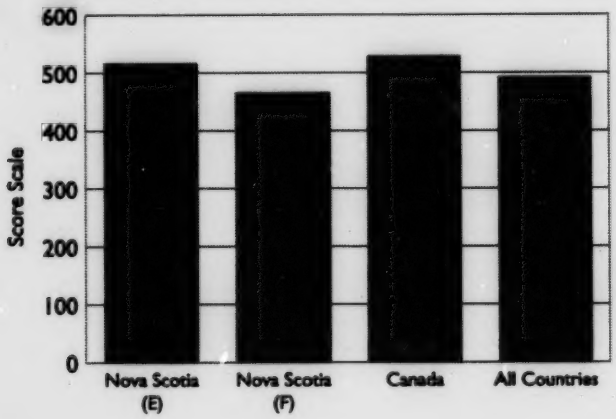

In 1996 and 1999, Nova Scotia Anglophone students performed as well as students across Canada at level 3 or above. In 1996, Acadian/Francophone students were above the Canadian average, and in 1999 their performance was at the Canadian average.

# International Assessment

## PISA

In 2000, Nova Scotia 15-year-old students were assessed in science by a test designed for students in 32 countries. The chart below presents the average scores of Nova Scotia Anglophone and Acadian/Francophone students and compares these scores to the Canadian student average, as well as the average scores for all countries participating in this assessment. Acadian/Francophone students wrote the test in French.

**PISA Science 2000 (15-year-old students)**




Overall, Canada performed well in relation to the majority of participating countries. However, Nova Scotia scored lower than the national average.

PISA will be administered again in 2003.

# Minister's Action Plan

## Building Quality, Standards, and Accountability in Education

# Summary

For the first time, provincial, national, and international assessment results are being presented in a *Minister's Report to Parents*. This report will be produced annually so parents, and all Nova Scotians, can see how students are doing in the provincial school program, and how they compare to students around the world.

The information within this report must be used by all partners in education—the Department of Education, school boards, teachers, parents, and the school community—to improve learning opportunities for students.

The results in this report confirm that government is taking the right direction by making reading, writing, and mathematics the top priorities. An action plan has been developed to improve learning in these and other priority areas. The plan increases support and focus on the following:

> the early years
> classroom support
> time to learn—language arts and mathematics
> quality of instruction
> accountability for results

# Action Plan

This action plan outlines new initiatives to support student learning in areas identified in the *Minister's Report to Parents*. Other educational initiatives are ongoing, or will be developed with partners.

## The Early Years

The goal is to help children become ready to learn by the time they start school; to give them more personal support and attention in the early years; and to identify and work with struggling students to get them, and keep them, on track for success.

> Work with families and community agencies on early childhood development programs that help prepare children for school.
> Continue to support *Reading Recovery*™—an early intervention program that gives one-on-one attention to struggling young readers.
> Continue to support *Active Young Readers*—setting a strong foundation in reading for students from the day they begin school.

## Classroom Support

The goal is to ensure all students have the books, resources, and courses they need to succeed in school and after graduation. Building a strong foundation in the basics first—reading, writing, and mathematics—is the top priority.

> Complete $2.4 million commitment in reading, writing, and grammar programs, putting thousands of new books in students' and teachers' hands.
> Develop a new grade 6 literacy test. Struggling students will get intervention and support.
> Work with school boards on a primary–9 mathematics strategy, including support for teaching the curriculum and training for teachers to be mathematics leaders in their schools.
> Complete $2.2 million purchase and delivery of new mathematics texts for every grade 7–12 student.
> Complete the introduction of new high school mathematics courses, ranging from advanced mathematics to foundation courses to help struggling students get back on, and stay on, track.
> Add classroom mathematics resources, such as books, fraction block sets, and graphing calculators.
> Identify new high school physics texts that match the curriculum, and are interesting and relevant to students.

## Time to Learn—Language Arts and Mathematics

The language arts and mathematics curriculum—developed by teachers—reflects national and international standards. The goal is to ensure that students have enough time each day to learn and master these essential subjects.

> Work with school boards on a minimum standard of 90–120 minutes daily for language arts, grades primary–6.
> Work with school boards on a minimum standard of one hour daily for mathematics in grades 3–6, and 45 minutes daily for grades primary–2.
> Work with school boards on ways to add class time in higher grades for language arts and mathematics. In mathematics, the requirement is a minimum of 110 hours per credit.

## Quality of Instruction

The goal is to support teachers in providing quality instruction by adding focus on language arts and mathematics in teacher education; providing school board leadership and in-school support; providing straight-forward, practical resources that help teachers teach new curricula; and matching professional development to classroom priorities and needs of individual teachers.

> Work with universities on increasing credit hours in language arts and mathematics. (Currently, 9 credit hours are required in social studies, 6 in language arts, and 3 in mathematics.)
> Work with universities in training more mathematics and science teachers.
> Match professional development with classroom priorities through a co-ordinated provincial plan.
> Develop a framework for teacher professional growth plans, which teachers and principals will use to link teacher and classroom needs. The plan must minimize time taken away from the classroom.
> Develop practical, straight-forward resources for teachers that provide sample lesson plans, homework, and other learning activities in language arts and mathematics—helping to focus classroom learning on curriculum outcomes.
> Develop guidelines for teachers on activities and equipment for physics labs.
> Provide intensive professional development for 880 teachers to become mathematics leaders in their schools.
> Build school board leadership in mathematics and language arts to support teachers in schools.

## Accountability for Results

All partners have a role to play in supporting student success. The goal is to put more information into the hands of partners to guide planning and to increase accountability for results.

> Produce minister's annual report on student assessment results and planned actions; produce school-by-school results; and provide individual student results to parents.
> Develop a new standard student report card to provide parents with clear and meaningful information on how their children are doing in the classroom.
> Require school board business plans to include learning improvement targets and actions in priority subjects, and to report annually on progress.
> Increase attention on school improvement plans. Pilot projects are planned where school advisory councils will do internal needs assessments linked to educational priorities, develop school improvement plans that are evaluated by external teams, and release annual reports on progress.
> Continue testing in elementary, junior high, and high school, including a new grade 12 mathematics exam.

If you have comments or questions about this report, or about education generally, please contact the Department of Education, Education Renewal, PO Box 578, Halifax, NS, B3J 2S9, telephone: (902) 424-4905. We want to hear from you as we work together to improve the quality of education for Nova Scotia students.